

**NETWORK DEVICE INTERFACE FOR DIGITALLY INTERFACING DATA
CHANNELS TO A CONTROLLER VIA A NETWORK**

ABSTRACT OF THE DISCLOSURE

5 The present invention provides a network device interface and method for
digitally connecting a plurality of data channels, such as sensors, actuators, and
subsystems, to a controller using a network bus. The network device interface
interprets commands and data received from the controller and polls the data channels
in accordance with these commands. Specifically, the network device interface
10 receives digital commands and data from the controller, and based on these
commands and data, communicates with the data channels to either retrieve data in
the case of a sensor or send data to activate an actuator. Data retrieved from the
sensor is then converted by the network device interface into digital signals and
transmitted back to the controller. In one advantageous embodiment, the network
15 device interface uses a specialized protocol for communicating across the network bus
that uses a low-level instruction set and has low overhead for data communication.

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